

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 6, 21 to 24, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueya (Jp 63008291) in view of Okubo (JP 11043396).

The Ueya reference teaches a seed puller and a method of growing a crystal. The apparatus consists of a chamber with a crucible. A melt is formed in the crucible. There is a means to pull of crystal from the melt and create a crystal ingot. There is a heater around the crucible. There is a second heater that is just above the melt to keep the melt at a set temperature, note the figures. The differences between the instant claims and the prior art are the area that the second heater covers and the elongated puller. However, The Okubo reference teaches an elongated puller and no cover on the melt, note, figure. It would have been obvious to one of ordinary skill in the art to modify the Ueya et al reference by the teachings of the Okubo reference to have an elongated puller and uncovered melt in order to pull larger crystals and allow gases to be removed. Also, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine the optimum, operable cover area of the second heater in the Ueya reference in order to effectively heat the melt at a constant rate.

Claims 7 to 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueya (Jp 63008291) in view of Kotooka et al (6,117,402) and Jp (11-255,577).

The Ueya reference is relied on for the same reasons as stated, supra, and differs from the instant claims in the reflector and heater around the ingot. However, the Kotooka et al reference

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teaches heaters around the crystal, note figures and the Jp (11-255,577) reference teaches the reflector with a melt heater. It would have been obvious to one of ordinary skill in the art to modify the Ueya et al reference by the teachings of the Kotooka et al and Jp (11-255,577) reference in order to create the desired profile in the crystal.

Claims 25 to 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueya (Jp 63008291) in view of Kotooka et al (6,117,402) and Jp (11-255,577).

The references are relied on for the same reasons as stated, supra, and differ from the instant claims in the control of the crystal growth. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentations the optimum, operable controls step in the combined references in order to grow the desired crystal as the conditions do affect the ingot.

Response to Applicants' Arguments

Applicant's arguments filed July 10, 2007 have been fully considered but they are not persuasive.

Applicants' argument concerning the apparatus claims 1-12 is noted. However, the apparatus of the prior art must only be capable of performing the function or process set forth in the claims. Clearly, the apparatus of the Ueya reference can heat an uncovered melt portion at the top of the melt. The means are the same as instantly claimed and in the same place. Thus, the prior art reads on the instant apparatus and renders the amount of area covered by the heater obvious to one of ordinary skill.

Applicants' argument concerning the method claims 21-31 and 39 to 43 has been considered and not deemed persuasive. The claims do not exclude the use of a covering melt. The specification when referring to the uncovered melt is referring to the area not covered by the seed crystal or ingot and lids. Thus, the prior art reference does and is pertinent to the instant invention and method claims. The prior art does teach heating parts of the uncovered melt that is referred to by applicants own specification. Also, the claims and the prior art have the same set up of apparatus, which would allow the gas escape.

Applicant's argument concerning claims 25 to 46 is noted. However, applicants have not pointed out any feature not taught or render obvious by the instant claims.

Applicants' argument concerning claim 17, 19 and 47 is noted. Clearly in the rejection the examiner has addressed the issue of reflectors and heaters. The combination of references teaches the claimed apparatus and the placement of the reflectors and lower heater with one another.

Applicants' argument concerning claims 32 to 38, 44 to 46, has been considered and not deemed persuasive. The examiner in the rejection stated the difference between the claims and the prior art to be obvious modifications of the art. Applicants have not shown that the conditions are not within the skill of the art.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M. Kunemund whose telephone number is 571-272-1464. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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